adjusting a size and position of the template bone model based on the bone contour; and

minimizing differences between the template bone model and the X-ray images.

32. The method of claim 31, further comprising creating a surgical plan based on the template bone model.

33. The method of claim 31, wherein minimizing differences includes minimizing differences based on a plurality of free form deformation parameters.

34. The method of claim 31, wherein adjusting a size and position of the template bone model includes adjusting the size and position of the template bone model until they are optimum.

35. The method of claim 31, further comprising accepting the plurality of X-ray images in digital format.

36. The method of claim 31, further comprising accepting a position of a camera.

37. A system, comprising:

a 3D (three-dimensional) template geometry database having stored therein at least one 3D template bone model; and

a 3D geometry reconstructor module;

wherein the reconstructor module creates a 3D model of a bone by:

extracting a bone contour from a plurality of 2D (two-dimensional) X-ray images;

identifying the bone contour on a 3D template bone model;

adjusting a size and position of the template bone model based on the bone contour; and

minimizing differences between the template bone model and the X-ray images.

38. The system of claim 37, wherein the geometry reconstructor module is further for accepting the plurality of X-ray images in digital format.

39. The system of claim 37, further comprising a deformation mode database.

40. A 3D (three-dimensional) geometry reconstructor, comprising:

means for extracting a bone contour from a plurality of 2D (two-dimensional) X-ray images;

means for identifying the bone contour on a 3D template bone model;

means for adjusting a size and position of the template bone model based on the bone contour; and

means for minimizing differences between the template bone model and the X-ray images.